

AD-A094 842 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2  
19311A MLRS; MISSILE NUMBER V18-004, ROUND NUMBER V-129/DF-2.(U)

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NOVEMBER 1980

AD

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LEVEL II

METEOROLOGICAL DATA REPORT

19311A MLRS  
Missile No. V18-004  
Round No. V-129/DF-2  
13 November 1980

by

White Sands Meteorological Team

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FEB 10 1981  
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ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM

UNITED STATES ARMY ELECTRONICS COMMAND

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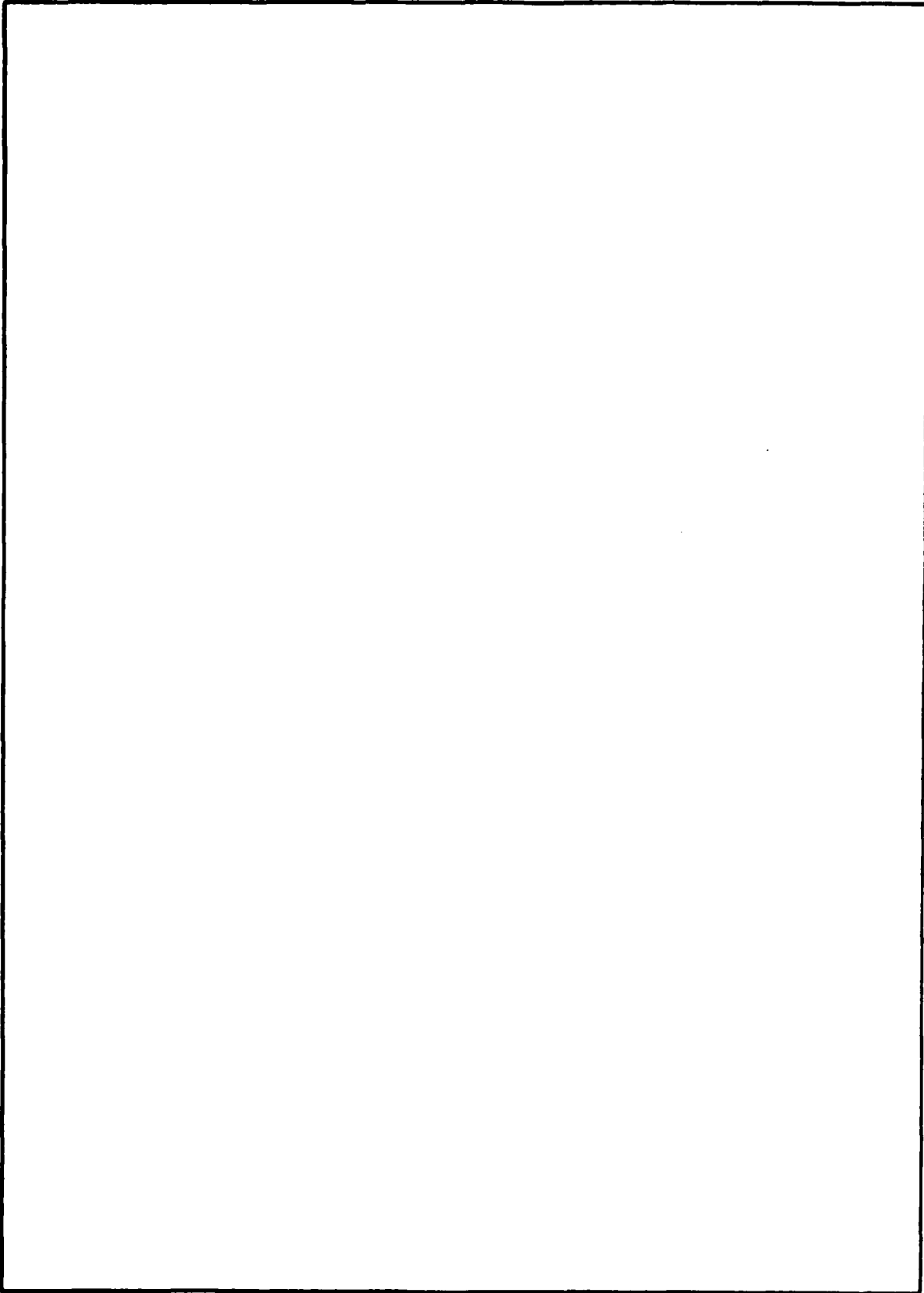
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19311A MLRS, Missile Number V18-004, Round Number V-129/DF-2 presented in tabular form.		

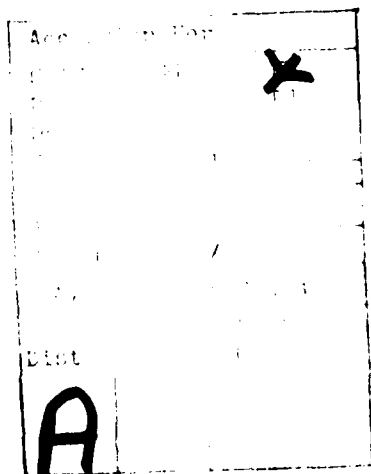
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## INTRODUCTION

19311A MLRS, Missile Number V18-004, Round Number V-129/DF-2,  
was launched from LC 33, White Sands Missile Range (WSMR), New  
Mexico, at 1300 MST on 13 November 1980. The scheduled launch time  
was 1300 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC 33 met site at T-0 minutes.

(2) Monitor of wind speed and direction from one anemometer was provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

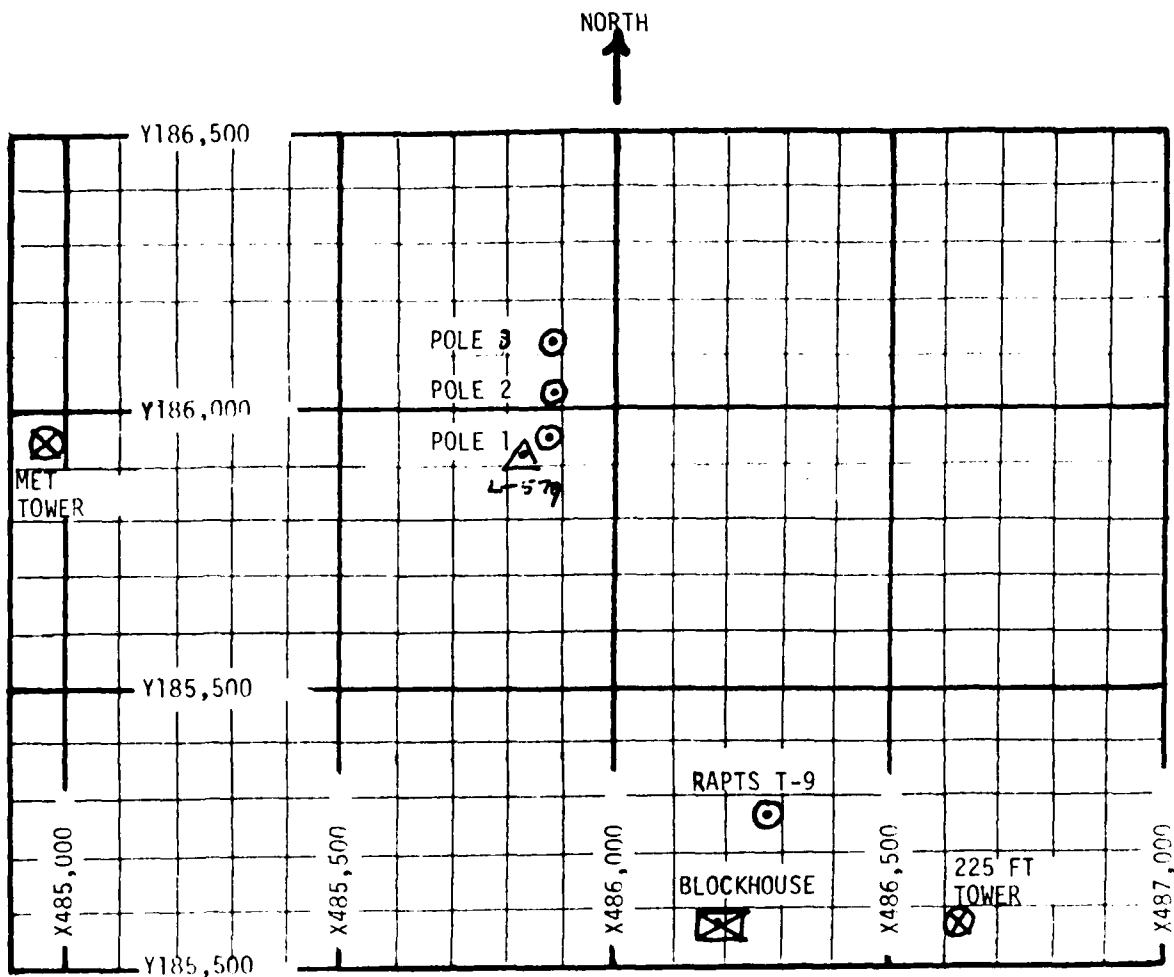
#### SITE AND ALTITUDE

LC 33	2 km
NICK	2 km

(b) Air structure data (rawinsonde) were collected at the following met sites. Data were collected from surface to as high as possible in 500-foot increments.

#### SITE AND TIME

WSD	1300MST
-----	---------



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 - 38.7 ft
  - (b) Pole #2 - 53.0 ft
  - (c) Pole #3 - 83.6 ft
3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar



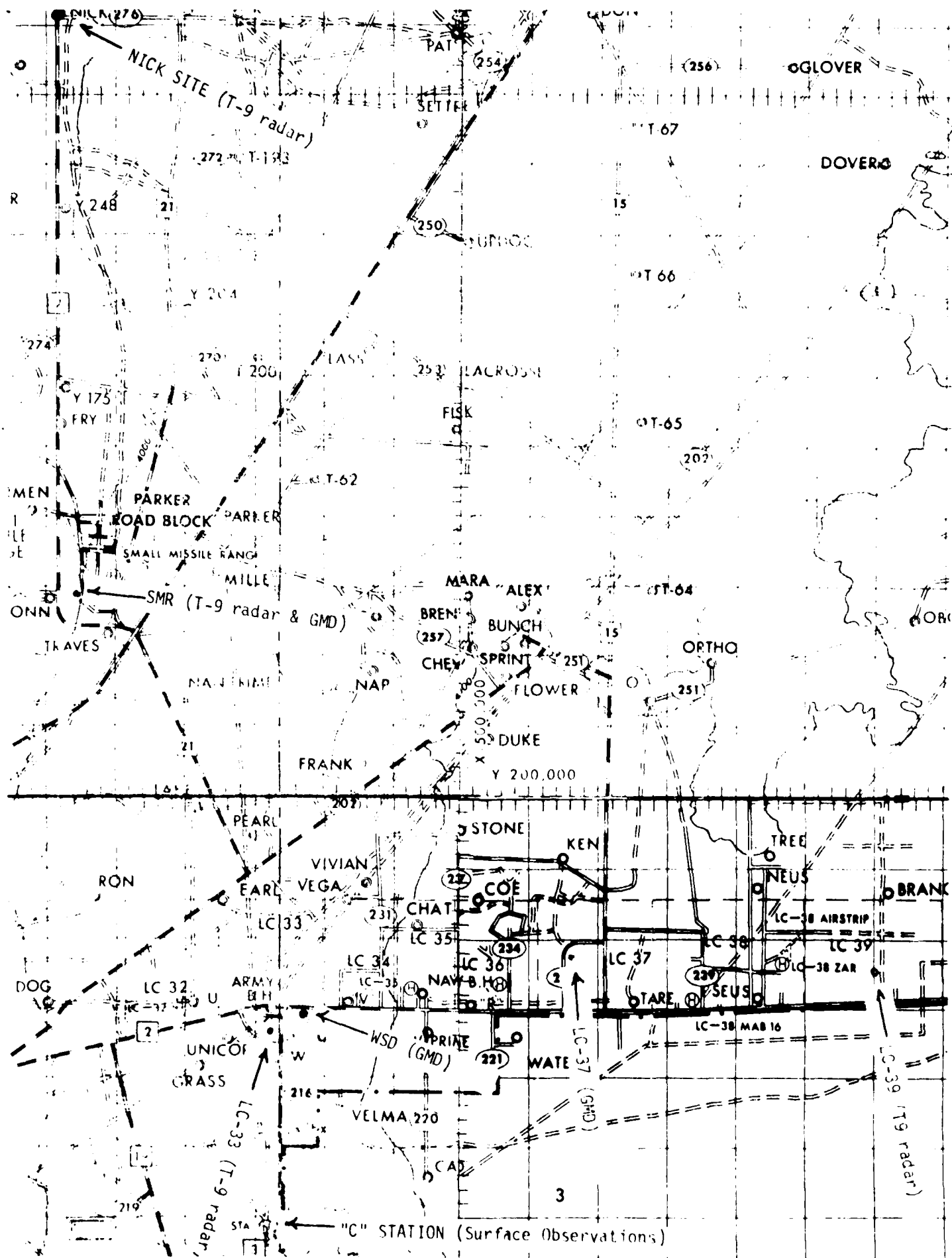


TABLE 1. Surface Observations Taken at 1300 MST,  
13 November 1980, at LC 33, 19311A MLRS  
Missile Number V18-004, Round Number V-129/DF-2.

ELEVATION	3983.00	FT/MSL
PRESSURE	877.6	MBS
TEMPERATURE	22.2	°C
RELATIVE HUMIDITY	30	%
DEW POINT	3.6	°C
DENSITY	1031	GM/M <sup>3</sup>
WIND SPEED	08	KTS
WIND DIRECTION	240	DEGREES
CLOUD COVER		

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	250	14	T-30	260	Missing	T-30	249	15
T-20	255	13	T-20	266	Missing	T-20	256	13
T-10	255	12	T-10	270	Missing	T-10	254	14
0.0	250	12	0.0	264	Missing	0.0	261	12
T+10	255	10	T+10	261	Missing	T+10	262	12

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	268	14	T-30	264	14
T-20	267	14	T-20	272	15
T-10	264	10	T-10	264	12
0.0	289	10	0.0	260	12
T+10	289	10	T+10	282	13

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	252	14	T-30	259	13
T-20	246	14	T-20	258	15
T-10	251	15	T-10	259	15
0.0	252	12	0.0	259	12
T+10	263	10	T+10	259	13

## PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC 33      DATE 13 November 1980      TIME 1300 MST

COORDINATES (WSTM)    X= 486,037.24    Y= 182,350.16    H= 3,977.30

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH .

HEIGHTS ARE METERS AGL XX OR FEET AGL           .

[illegible][illegible][illegible]

## PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM NICK SITE

DATE 13 November 1980

TIME 1300 MST

COORDINATES (WSTM)

470,734.56

255,775.64

4,126.57

NOTE: WIND DIRECTIONS ARE REFERENCED TO

HEIGHTS ARE METERS AGL XX OR FEET AGL       .

[illegible][illegible][illegible]

STATION ALTITUDE 3989.00 FEET MSL  
13 NOV. 80  
ASCENSION NO. 598

SIGNIFICANT LEVEL DATA  
3180020598  
WHITE SANDS

GEODETTIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 6

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
880.1	22.9	3.4	28.0
877.0	20.4	.8	27.0
789.6	12.1	-.1	43.0
723.0	5.0	-4.3	51.0
674.1	-.5	-6.3	65.0
660.0	-1.2	-14.3	36.0
651.0	-1.5	-19.4	24.0
624.8	-2.0	-23.7	17.0
607.6	-2.9	-25.1	16.0
561.8	-6.7	-28.9	15.0
540.4	-7.6	-29.7	15.0
462.2	-17.1	-37.5	15.0
428.5	-20.5	-38.0	19.0
418.2	-20.3	-30.9	38.0
409.1	-21.3	-33.5	32.0
402.1	-22.3	-25.5	75.0
397.2	-22.7	-25.2	80.0
383.4	-23.5	-27.6	69.0
376.6	-24.2	-27.8	72.0
370.2	-24.9	-29.7	64.0
356.6	-26.8	-30.9	68.0

STATION ALTITUDE 3989.00 FEET MSL  
13 NOV. 80  
ASCENSION NO. 598

UPPER AIR DATA  
3180020590  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	880.1	22.9	3.4	28.0	1032.1	671.4	255.0	7.0	1.000264
4000.0	879.8	22.6	3.2	27.9	1032.8	671.1	254.8	7.0	1.000263
4500.0	864.2	19.2	.9	29.2	1026.7	667.1	246.7	7.1	1.000258
5000.0	848.9	17.8	.9	32.0	1013.3	665.5	238.9	7.3	1.000255
5500.0	833.8	16.4	.8	34.7	1000.2	663.9	231.8	7.7	1.000252
6000.0	819.0	15.0	.6	37.4	987.3	662.3	227.4	7.8	1.000249
6500.0	804.5	13.6	.3	40.2	974.5	660.6	224.8	7.6	1.000246
7000.0	790.2	12.2	-.1	42.9	962.0	659.0	226.7	7.9	1.000243
7500.0	775.8	10.7	-.9	44.6	949.5	657.2	230.9	8.6	1.000239
8000.0	761.6	9.2	-1.7	46.3	937.2	655.5	235.5	9.4	1.000234
8500.0	747.8	7.7	-2.6	47.9	925.1	653.7	239.9	10.4	1.000230
9000.0	734.1	6.2	-3.5	49.6	913.2	652.0	244.4	11.8	1.000226
9500.0	720.7	4.7	-4.3	51.6	901.3	650.2	249.4	13.7	1.000223
10000.0	707.3	3.3	-4.8	55.4	889.3	648.5	253.2	15.7	1.000219
10500.0	694.1	1.8	-5.3	59.2	877.4	646.7	256.6	18.2	1.000216
11000.0	681.1	.3	-5.9	62.9	865.8	644.9	259.2	20.8	1.000213
11500.0	668.4	-.8	-9.1	53.3	853.4	643.5	261.9	22.6	1.000206
12000.0	655.7	-1.3	-16.5	30.3	839.6	642.6	263.8	24.1	1.000196
12500.0	643.3	-1.6	-20.5	22.0	824.9	642.1	264.3	24.9	1.000190
13000.0	631.1	-1.9	-22.5	18.7	810.0	641.8	264.4	26.4	1.000186
13500.0	619.2	-2.3	-24.2	16.7	795.9	641.3	264.4	28.4	1.000182
14000.0	607.4	-2.9	-25.2	16.0	782.6	640.6	264.9	31.2	1.000178
14500.0	595.8	-3.9	-26.1	15.7	770.3	639.5	262.8	34.2	1.000175
15000.0	584.4	-4.8	-27.0	15.5	758.2	638.3	259.2	37.3	1.000172
15500.0	573.2	-5.7	-28.0	15.3	746.4	637.2	254.6	39.1	1.000169
16000.0	562.2	-6.7	-28.9	15.0	734.6	636.1	250.4	41.0	1.000167
16500.0	551.3	-7.1	-29.3	15.0	721.7	635.5	250.0	39.7	1.000164
17000.0	540.7	-7.6	-29.7	15.0	709.0	635.0	249.7	38.2	1.000161
17500.0	530.0	-8.8	-30.6	15.0	698.2	633.5	251.7	38.3	1.000158
18000.0	519.6	-10.0	-31.6	15.0	687.6	632.1	253.2	39.0	1.000156
18500.0	509.3	-11.2	-32.6	15.0	677.2	630.6	252.7	41.7	1.000153
19000.0	499.3	-12.4	-33.6	15.0	666.9	629.2	251.7	44.0	1.000151
19500.0	489.5	-13.6	-34.6	15.0	656.8	627.7	250.3	45.8	1.000148
20000.0	479.8	-14.8	-35.6	15.0	646.9	626.2	248.3	47.5	1.000146
20500.0	470.4	-16.0	-36.6	15.0	637.2	624.7	246.2	49.1	1.000143
21000.0	461.1	-17.2	-37.5	15.1	627.5	623.3	245.5	53.5	1.000141
21500.0	451.8	-18.1	-37.6	16.2	617.0	622.2	245.6	59.0	1.000139
22000.0	442.6	-19.0	-37.7	17.3	606.7	621.1	245.5	64.7	1.000137
22500.0	433.7	-20.0	-37.9	18.4	596.6	620.0	245.5	70.6	1.000134
23000.0	424.9	-20.4	-35.0	25.5	585.6	619.4	245.3	75.1	1.000132

STATION ALTITUDE 3989.00 FEET MSL				UPPER AIR DATA				GEODETIC COORDINATES			
13 NOV. 80				3180020598				32.40043 LAT DEG			
ASCENSION NO. 598				WHITE SANDS				106.37033 LON DEG			
TABLE 7 (Cont)											
GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL.HUM.	DENSITY	SPEED OF	WIND DATA	SPEED	INDEX			
MSL FEET	MILLIBARS	AIR DEWPOINT	PERCENT	GM/CUBIC	SOUND	DIRECTION	KNOTS	OF			
		DEGREES CENTIGRADE		METER	KNOTS	DEGREES(TN)		REFRACTION			
23500.0	416.3	-20.5	36.8	573.8	619.3	245.1	79.0	1.000130			
24000.0	407.8	-21.5	39.8	564.3	618.2	245.0	81.9	1.000128			
24500.0	399.5	-22.5	77.7	554.8	617.0	244.6	84.3	1.000128			
25000.0	391.3	-23.0	75.3	544.6	616.3	242.2	84.2	1.000126			
25500.0	383.3	-23.5	69.1	534.5	615.7	239.7	84.2	1.000123			
26000.0	375.4	-24.3	70.5	525.2	614.7	236.9	84.3	1.000121			
26500.0	367.6	-25.3	64.7	516.3	613.5			1.000118			
27000.0	360.0	-26.3	67.0	507.8	612.2			1.000116			



STATION ALTITUDE 3989.00 FEET MSL  
 13 NOV. 80 1300 HRS MST  
 ASCENSION NO. 598

MANDATORY LEVELS  
 3180020598  
 WHITE SANDS  
 TABLE 8

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4967.	17.9	.9	32.	239.4	7.3	
800.0	6654.	13.1	.2	41.	223.9	7.6	
750.0	8419.	8.0	-2.5	48.	239.3	10.3	
700.0	10268.	2.5	-5.1	57.	255.2	17.1	
650.0	12217.	-1.5	-19.5	24.	264.0	24.5	
600.0	14302.	-3.5	-25.7	16.	264.3	33.0	
550.0	16541.	-7.2	-29.3	15.	250.0	39.5	
500.0	18956.	-12.3	-33.5	15.	251.8	43.9	
450.0	21566.	-18.3	-37.6	16.	245.6	60.0	
400.0	24428.	-22.5	-25.4	77.	244.8	84.3	

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